

CLAIMS

1. A method of processing a stream of data packets in a packet switch having one or more interface devices for servicing an input point, a first output point and a second output point of the switch, said method comprising the steps of:

- (a) configuring the device servicing the input point to attach overhead associated with a point-to-point connection to packets received at the input point in order to route the packets to the first output point;
- (b) configuring the device servicing the first output point to receive and process the packets having the point-to-point overhead attached thereto;
- (c) configuring the device servicing the second output point to receive and process packets having overhead attached thereto which is associated with a point-to-multipoint connection for routing packets from the input point to the first output point and from the input point to the second output point;
- (d) configuring the device servicing the first output point to additionally receive and process packets having the point-to-multipoint overhead attached thereto;
- (e) configuring the device servicing the input point to attach the point-to-multipoint overhead to packets received at the input point only after step (d) is completed,

thereby converting a point-to-point packet flow into a point-to-multipoint packet flow without disrupting the point-to-point packet flow.

2. The method according to claim 1, further comprising the steps of:

- (f) configuring the device servicing the second output point to stop receiving and processing packets having the point-point multipoint overhead;
- (g) configuring the device servicing the input point to attach the point-to-point overhead to packets received at the input point; and

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- (h) configuring the device servicing the first output point to stop receiving and processing packets having the point-to-point multipoint overhead only after step (g) is completed,

thereby terminating the flow of packets to the second output point without
5 disrupting the flow of packets to the first output point.

3. The method according to claim 2, wherein each switch point is referenced by at least an address of the interface card within the switch and a virtual path identifier.

- 10 4. The method according to claim 3, wherein the point-to-point overhead comprises a unique interface card address.

5. The method according to claim 3, wherein the point-to-multipoint overhead comprises a multicast interface card address referencing a plurality of interface cards.

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6. The method according to claim 3, wherein the point-to-point overhead and the point-to-multipoint overhead comprise identical bitmaps, wherein the setting of a single bit identifies a point-to-point connection and the setting of plural bits identifies a point-to-multipoint connection.

- 20 7. The method according to claim 2, wherein said packet is a fixed-length cell.

8. The method according to claim 7, wherein said packet switch is a connection-oriented switch.

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9. A method for converting a point-to-point packet flow from a first point to a second point in a packet switch into a point-to-multipoint packet flow from said first point to said second point and from said first point to a third point in said packet switch without

disrupting said point-to-point packet flow, wherein said switch comprises one or more interface devices, connected to an internal switch bus, for servicing said first, second and third points, said method comprising the steps of:

- 5 (a) configuring the device servicing said third point to retrieve from said bus packets addressed thereto which use a multicast addressing scheme for routing packets from said first point to said second point and from said first point to said third point;
- (b) configuring the device servicing said second point to additionally retrieve from said bus the multicast packets; and
- 10 (c) configuring the device servicing said first point to address packets received at said first point to said second and third points using said multicast address scheme after step (b) is completed.

10. The method according to claim 9, further comprising the steps of:

- 15 (d) configuring the device servicing the third point to stop retrieving said multicast packets;
 - (e) configuring the device servicing the first point to address packets received thereat only to the second point; and
 - (f) configuring the device servicing the second point to stop retrieving said
 - 20 multicast packets only after step (e) is completed,
- thereby terminating the flow of packets to said third point without disrupting the flow of packets to said second point.

11. The method according to claim 10, wherein the unicast addressing scheme

25 comprises a unique interface card address.

12. The method according to claim 10, wherein the multicast addressing scheme comprises a multicast interface card address referencing a plurality of interface cards.

13. The method according to claim 10, wherein the unicast addressing scheme and the multicast addressing scheme comprise identical bitmaps, wherein the setting of a single bit identifies a point-to-point connection and the setting of plural bits identifies a point-to-multipoint connection.

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14. The method according to claim 10, wherein said packet is a fixed-length cell.

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15. A method of processing a stream of data packets in a packet switch arriving at an input point thereof, said method comprising the steps of:

10 (a) attaching overhead associated with a point-to-point connection to packets received at the input point in order to route the packets to a first output point;

(b) receiving and processing the packets having the point-to-point overhead attached thereto at the first output point;

15 (c) configuring a device servicing the first output point to additionally receive and process packets having overhead attached thereto which is associated with a point-to-multipoint connection for routing packets from the input point to the first output point and from the input point to a second output point;

20 (d) attaching the point-to-multipoint overhead to packets received at the input point only after step (c) is completed; and

(e) receiving and processing the packets having the point-to-multipoint overhead attached thereto at the second output point,

25 thereby converting a continuous point-to-point packet flow into a point-to-multipoint packet flow without disrupting the point-to-point packet flow.

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16. The method according to claim 15, wherein the point-to-point overhead comprises a unique interface card address.

17. The method according to claim 15, wherein the point-to-multipoint overhead comprises a multicast interface card address referencing a plurality of interface cards.

5 18. The method according to claim 15, wherein the point-to-point overhead and the point-to-multipoint overhead comprise identical bitmaps, wherein the setting of a single bit identifies a point-to-point connection and the setting of plural bits identifies a point-to-multipoint connection.

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19. The method according to claim 15, further comprising the steps of:
(f) terminating the reception and processing of packets having the point-to-multipoint overhead at the second output point;
(g) attaching the point-to-point overhead to packets received at the input point; and
(h) terminating the reception and processing of packets having the point-to-point multipoint overhead at the first output point only after step (g) is completed,

thereby terminating the flow of packets to the second output point without disrupting the flow of packets to the first output point.

20 20. The method according to claim 19, wherein each switch point is referenced by at least an address of the interface card within the switch and a virtual path identifier.

21. The method according to claim 19, wherein the point-to-point overhead comprises a unique interface card address.

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22. The method according to claim 19, wherein the point-to-multipoint overhead comprises a multicast interface card address referencing a plurality of interface cards.

23. The method according to claim 19, wherein the point-to-point overhead and the point-to-multipoint overhead comprise identical bitmaps, wherein the setting of a single bit identifies a point-to-point connection and the setting of plural bits identifies a point-to-multipoint connection.

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24. The method according to claim 19, wherein the packet is a fixed-length cell.

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